[and] or unloading of material into [and] or from a body of the vehicle during each of the haul cycles;

second means for sensing a haulage parameter [that] related to the efficiency of work done by the vehicle whose value varies during each of the haul cycles and providing a second set of data indicative of the [parameter] value;

an electronic [processing means] processor on-board the vehicle for acquiring the first and second sets of data [from the first and second means], processing the data to [provide] detect a change in the value of either the first or second sets of data and providing a third set of data quantifying the change, which thereby defines a haulage event executed by the vehicle during a haul cycle[s]; and

a storage medium for accumulating the third set of data from the electronic [processing means] processor so as to create a historical [data base] record of the haulage events.

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4. (Once Amended) The system as set forth in claim 1 wherein the second means includes a device for detecting a forward[-], neutral[-] or reverse status of a drive train associated with the haulage vehicle.

5

~~6.~~ (Once Amended) The system as set forth in claim [5] 1 wherein the first means includes a sensor for detecting the raising of the body for unloading of the material in the body.

6

~~7.~~ (Once Amended) The system as set forth in claim [34] 1 including a third means for [delivering control data based on the third set of data in] processing the

historical [data base] record to provide control data for routing the vehicle to selected locations.

7
~~8.~~ (Once Amended) The system as set forth in claim 1 including a third means responsive to the electronic [processing means] processor for downloading the third set of data to a remote site which includes the storage medium.

8
~~9.~~ (Once Amended) The system as set forth in claim 7/~~8~~ wherein the remote site includes a central [electronic] processing [means] unit responsive to the downloaded third sets of data [and] comprising the historical [data base] record of haulage [cycles] events for providing control data for use in directing a future operation of the vehicle.

18
17 ~~10.~~ (Once Amended) The system as set forth in claim ~~37~~ wherein the haulage vehicle is loaded by a bucket of a loading equipment and the electronic [processing means] processor includes means for determining the weight of [each] a load carried by the bucket in response to the first means and the third set of data includes the weight of [each] the load carried by the bucket.

10
~~11.~~ (Once Amended) The system as set forth in claim [8] 1 wherein the haulage vehicle is loaded by a bucket of a loading equipment[, the electronic processing means including fourth means responsive to the first and second sets] and the third set of data [for determining] includes a determination of when material carried by the bucket is loaded [onto] into the body [and incorporating the determination into the information].

11

~~12.~~ (Once Amended) The system as set forth in claim [11] 1 wherein the [electronic processing means includes a fifth means responsive to the first and second sets] third set of data [for determining] includes a determination of an elapsed time of the haulage event of loading the body of the vehicle, where the elapsed time is measured from the loading of a first bucket in a load to the loading of a last bucket in the load.

12

~~13.~~ (Once Amended) The system as set forth in claim [12] 1 wherein the [electronic processing means includes a sixth means responsive to the first and second sets of data for recording the identity of] haulage vehicle is loaded by loading equipment and the second means is a detector for uniquely identifying the loading equipment [and providing information in the third set of data associating the identity of the loading equipment with the event of loading material held by the bucket into the body].

13

~~14.~~ (Once Amended) The system as set forth in claim 12 ~~13~~ wherein the [sixth means] detector includes means for delivering [the identity of the loading equipment and the associated determination of when the bucket is loaded onto the body] to the electronic [processing means] processor data uniquely identifying the loading equipment for incorporation by the processor into the [information] third set of data and the historical [data base] record of haulage events.

14

~~15.~~ (Once Amended) The system as set forth in claim 1 wherein the second means monitors time and the third set of data includes the first set of data marked with an indication of [a time the first set of data was] the

elapsed time between various changes in the value of the first set of data being collected.

15
~~18.~~ (Once Amended) The system as set forth in claim 1 wherein the second set of data is indicative [is] of the geographic location of the vehicle.

37
~~24.~~ (Once Amended) A system for acquisitioning and accumulating data indicative of haul cycles executed by a haulage vehicle moving between load and dump sites, where each haul cycle is a complete round trip from a load site to a dump site and back to a load site or from a dump site to a load site and back to a dump site, the system comprising:

first means mounted to the vehicle for providing a first set of data whose value is indicative of a loading [and] or unloading of material into [and] or from a body of the vehicle during each of the haul cycles;

second means for providing a second set of data [indicative of] whose value uniquely identifies an entity controlling the vehicle [for each haul cycle];

an electronic [processing means] processor on-board the vehicle for acquiring the first and second sets of data [from the first and second means], detecting a change in the value of either the first or second sets of data and providing [processing the data to provide] a third set of data [which] in response to the change, where each third set of data defines a haulage event executed by the vehicle during a haul cycle[s]; and

a storage medium for accumulating the [information] third set of data from the electronic [processing means] processor so as to create a historical [data base] record of the haulage events [as defined by the information].

32
~~27.~~ (Once Amended) A system for acquisitioning and accumulating data indicative of [haulage events] haul cycles executed by a haulage vehicle moving between load and dump sites, where each haul cycle is a complete round trip from a load site to a dump site and back to a load site or from a dump site to a load site and back to a dump site, the system comprising:

first means mounted to the vehicle for providing a first set of data whose value is indicative of a loading or unloading of material [onto] into or from a body of the vehicle during each of the haul cycles;

second means for providing a second set of data [identifying] whose value uniquely identifies the vehicle;

an electronic [processing means] processor on-board the vehicle for acquiring the first and second sets of data [from the first and second means and organizing the first and second sets of data to provide information regarding the execution of a haulage event by the vehicle], detecting a change in the value of either the first or second sets of data and providing a third set of data in response to the change, where each third set of data defines a haulage event; and

[a third means mounted to the vehicle for downloading the information to a remote site] a storage medium for accumulating the third set of data from the electronic processor so as to create a record of the haulage events.

33
~~28.~~ (Once Amended) The system as set forth in claim ~~27~~ 32, further including ~~45~~ said remote site including [electronic] a central processing [means] unit (CPU) for receiving the [information] third set of data, the [electronic processing means] CPU including [means for creating and

updating a historical data base of the haulage events as defined by the information] the storage medium for accumulating the third set of data.

35
~~29.~~ (Once Amended) A system for tracking the time of a haul cycle for a haulage vehicle moving between load and dump sites, where each haul cycle is a complete round trip from a load site to a dump site and back to a load site or from a dump site to a load site and back to a dump site, the system comprising:

[first] means mounted to the vehicle for sensing the loading and unloading of a load carried by the vehicle during each of the haul cycles and providing [respective first and second sets of] data in response thereto;

[second means responsive to the electronic processing means for creating a data base from the elapsed times of the haul cycles and processing the data base to derive control data for commanding the routing of the vehicle to selected locations; and]

an electronic [processing means] processor on-board the vehicle responsive to the [first and second sets of] data [indicative of the loading and unloading of the vehicle] for determining [the] an elapsed time of [a] each of the haul cycles for the vehicle; and

a storage medium responsive to the electronic processor for creating a historical record of the elapsed times of the haul cycles and processing the record to derive control data for commanding the routing of the vehicle to selected load and dump sites.

16
~~33.~~ (Once Amended) The system as set forth in claim 1 including third means mounted to the vehicle for providing a fourth set of data indicative of the stopping of the vehicle and delivering the fourth set of data to

the electronic [processing means] processor to be incorporated into the third set of data.

9
~~35~~. (Once Amended) The system as set forth in claim 7, ~~8~~ including a fourth means for providing a fourth set of data indicative of the geographic location of the vehicle and delivering the fourth set of data to the electronic [processing means] processor for inclusion in the third set of data.

35
36. The system as set forth in claim ~~29~~ including a second means for providing [a third set of data identifying] an identification code for the vehicle and the electronic [processing means] processor including means [responsive to the second means] for marking the elapsed time of a haul cycle with the [third set of data] identification code so that the elapsed time of [a] each of the haul cycles is identified with the vehicle in the historical record.

REMARKS

This patent application is a file wrapper continuation of U.S. patent application Serial No. 351,179 (hereinafter "the '179 application"), which is now abandoned in favor of the present application.

On October 20, 1992, one of applicant's attorneys, John B. Conklin, contacted Examiner Dixon by telephone in order to conduct an interview concerning the outstanding Final Office Action in the '179 application. Although no specific amendments to the claims were discussed, Mr. Conklin inquired concerning overcoming the outstanding rejections of certain ones of the claims by amending the claims to incorporate a definition of the phrase "haul cycle." The inquiry was prompted by the statement at